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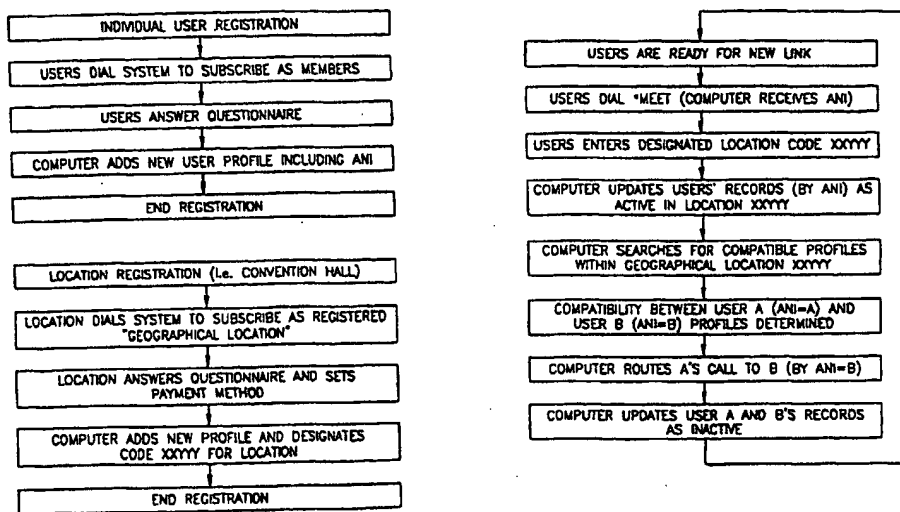
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(21) International Application Number: PCT/IL99/00507 (22) International Filing Date: 16 September 1999 (16.09.99) (30) Priority Data: 126364 25 September 1998 (25.09.98) IL (71) Applicant (for all designated States except US): L.I.M.S. (MANAGEMENT SYSTEMS) 1993 LTD. [IL/IL]; Habarzel Street 31, 69710 Tel Aviv (IL). (72) Inventors; and (75) Inventors/Applicants (for US only): FRIEDMAN, Chaim [IL/IL]; Barazany Street 9, 69121 Tel Aviv (IL). GUTERMAN, Eyal [IL/IL]; Shoham Street 29, 60190 Neve Monson (IL). (74) Agent: REINHOLD COHN AND PARTNERS; P.O. Box 4060, 61040 Tel-Aviv (IL).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>Without international search report and to be republished upon receipt of that report.</i>

(54) Title: METHOD AND SYSTEM OF INTERLINKING



(57) Abstract

A method and system for creating a telecommunication link between users of an interlinking system, where the user to be contacted is unknown. The system comprises user-associated two-way telecommunication devices and a computer, the computer and telecommunication devices being linked to a communications network. The computer comprises a receiver for receiving real time data from the users and a processor for analyzing the data and identifying the users with which a link is to be created. The link is then created by the computer through the communications network.

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METHOD AND SYSTEM OF INTERLINKING

FIELD OF THE INVENTION

This invention relates to a method and system for putting members of a group into contact with each other through a communications system.

BACKGROUND OF THE INVENTION

5 The communications revolution has made it easier to make contact with another person regardless of his location. Such devices as cellular phones, pagers and laptop PCs connected to the Internet make it relatively easy to contact a specific person. However, if the object to be contacted is unknown, multiple calls may be necessary until the desired person is located.

10 For example, if one desires to order the closest cab, he or she must make a number of calls until the closest cab is identified. In another example, numerous male-female dating programs have been described, but these do not take into account the current location of the prospective date, who may be temporarily out of the immediate area.

15 Examples of the prior art in this field follow:

U.S. 4,173,016 to Dickson discloses an interpersonal-introduction signaling system comprising a portable transmitter-receiver (transceiver) carried by a user and having a relatively short-range response. Each user may select certain pre-defined personality traits of a prospective partner, and these

20 traits are transmitted by the transceiver to other transceivers in the vicinity.

As a pair of suitable users approach each other, an indicator on the transceiver alerts them.

A simpler version of the above device is sold in Japan and Hong Kong under the name "Lovegety". The Lovegety device has 3 settings defining
5 different relationship levels, and is sold in male and female versions. The device sets off an audio signal when an appropriate device comes into a range of 5 meters.

U.S. 5,086,394 to Shapira discloses an introduction system for locating compatible persons. Each participating user has a personal device which
10 includes a memory containing personal data, and a remote pager. The users input their personal data into a local control unit located at a preselected site where users tend to gather. The control unit compares the data and automatically pages a matched pair of users.

U.S. 5,459,859 to Senda describes an apparatus and system for
15 providing a subscriber with information required for meeting with a desired person while travelling. The subscriber inputs data through an input/output terminal to a host computer through a communications network. The data includes the subscriber's attributes and travel schedule, and the desired person's attributes. The host computer then prepares and transmits to the
20 subscriber a list of potential persons which he may desire to meet, based on compatible schedules and attributes.

U.S. 5,596,634 to Fernandez discloses a telecommunications system for providing a caller with access to a conversation regarding a selected topic out of a plurality of conversations. The caller informs the system of his
25 selection, and is then connected to a current conversation relating to that topic. This patent does not relate to the physical location of the conversants.

SUMMARY OF THE INVENTION

A purpose of the present invention is to improve the ability of individuals to search for and come into personal contact with other compatible individuals who share the same interest or are willing to provide
5 required services at a specified location and time.

Thus, the present invention provides a method for creating a telecommunication link between users of an interlinking system, the system comprising user-associated two-way telecommunication devices and a computer, the computer and telecommunication devices being linked to a
10 communications network, the computer comprising a receiver and a processor. The method comprises the following steps: (a) the receiver receiving an identity data from each of the users relating to the identity of each user; (b) the receiver receiving an activation data from one or more of the users, hereinafter defined as "active users", and location data with respect
15 to the active users' respective current geographical locations, the activation data comprising a request to be linked to one or more other active users who fulfill a requirement defined in the request, and whom are currently located in a geographical location defined in the request; (c) the processor of the computer analyzing the identity and location data of the active users in
20 response to the activation data, and identifying one or more compatible active users who fulfill the requirement and who are located in the geographical location defined in the request; and (d) the computer creating a telecommunication link between the compatible active users through the telecommunication devices.

25 In a further aspect of the invention, there is provided an interlinking system for creating a telecommunication link between users of the system. The system comprises user-associated two-way telecommunication devices and a computer, the computer and telecommunication devices being linked to a communications network. The system further comprises: (a) a receiver

module of the computer for receiving an identity data from each of the users relating to the identity of each user; the receiver module receiving an activation data from one or more of the users, hereinafter defined as "active users", and location data with respect to the active users' respective current
5 geographical locations, the activation data comprising a request to be linked to one or more other active users who fulfill a requirement defined in the request, and whom are currently located in a geographical location defined in the request; (b) a processor module of the computer for analyzing the identity and location data of the active users in response to the activation data, and
10 identifying one or more compatible active users who fulfill the requirement and who are located in the geographical location defined in the request; and (c) a linker module of the computer for creating a telecommunication link between the compatible active users through the telecommunication devices.

By employing a computerized method together with a
15 telecommunication device, an interlink is made efficiently without the need for intermediates such as matchmakers and service dispatching centers, thus eventually reducing cost to users. The search is performed in a private manner, without exposing the user's interests to others who do not meet his requirements. More importantly, the initial tele-conversation initiated by the
20 system facilitates an immediate "negotiation" between individuals, which can be promptly followed by a direct meeting or service.

Prior art methods and systems intended to serve this purpose generally employ either a dedicated apparatus or Internet-based applications. The method of the invention improves on currently used methods, as follows:

- 25 • Dedicated Apparatus: By wearing or carrying such an apparatus, the user might expose his desire to be introduced to unintended parties. Furthermore, dependence on a dedicated specific apparatus restricts the ability to facilitate mass usage of the system so as to provide the individual with a wider choice of compatible persons. The present

invention is based on a communications network such as the telephone system, and, preferably, on the use of portable, wireless telecommunication devices such as cellular phones. Therefore, an individual who carries such a device does not unintentionally expose his desire to meet someone, and can interact with a large number of other interested individuals (e.g. approximately 200 million cellular phone owners worldwide). By taking advantage of the broad networking of a communications network, users can immediately communicate with a compatible user and exchange further information between them. This is especially true in the case of wireless devices. Furthermore, the search for a compatible person is not limited to the immediate proximity, as is the case with some of the systems described above.

• Internet-based matching applications: These applications facilitate making contact on a global basis, but do not address the need for making a direct physical link between a group of individuals located in a specific location during the same time frame. Furthermore, Internet-based applications require the user to be connected to the Internet via a PC, whereas the present invention is facilitated by the wide accessibility of telephones and other similar telecommunication devices.

The invention's capabilities are further enhanced by recent innovations in wireless technology, including the ability of system operators to determine the geographic location of a caller (e.g. Automatic Location Identification - ALI). ALI is defined, for example, in FCC Docket No. 94-102 (Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems). The locating function allows users to continuously update the system of their location in an automatic/passive manner.

The two-way telecommunications device of the invention may be a standard wireline or wireless device. Preferably, it will be a wireless device.

Such devices include, but are not limited to, a cellular phone, a wireless Personal Communications System (PCS), a paging device, a cellular Personal Digital Assistant (PDA) and a personal computer linked to a wireless device. As stated above, the method of the invention uses devices which are readily
5 available to potential users, making it unnecessary to acquire a dedicated device. The communications network may be a standard wired telephone system, a pager network, a standard Personal Communication System (PCS) network, different kinds of wireless telephone networks or a Wide Area Network (WAN).

10 Initially, a receiver module in a computer receives data from users of the system. The computer of the invention may be any conventional mainframe, minicomputer, personal computer, computer server or computer network. The computer may further comprise a memory module for storing the information fed into it, a processor module for analyzing the data of the
15 users and a linking module for creating a link between compatible users. Alternatively, the users may store data in the two-way telecommunication device, either integrally in a memory module, or on a portable memory device such as a "smart" card. The stored data is subsequently transmitted to the receiver module of the computer during "activation" (see below). Such an
20 embodiment will be useful for users moving from one communications system to another using roaming technologies such as GSM. The computer is linked to the communications network of the telecommunication device.

Initially, the receiver receives identity data from the users of the system. This data relates to the identity of each user and may include personal
25 information regarding the user, or information identifying a type of service provided by the user. Alternatively, the data may simply be the number of the user's telecommunication device, such as an Automatic Number Identification - ANI. The data may be entered into the system by answering a questionnaire presented either vocally or in written form using the

telecommunication device (e.g. entering a numerical response to a vocal questionnaire presented by the communications network voice mail system through a telephone keypad, or through a voice recognizer and response unit). Alternatively, a human operator may collect the information. Such a
5 questionnaire may vary in accordance with the type of linking or service the user wishes to receive. The user's ANI may be transmitted to the host computer in a passive manner simply by making a connection. The user may also transmit the data to the computer through a different communications network such as the Internet. In some cases, as exemplified below, the user
10 does not input data into the computer prior to submitting a request, but rather concurrently with the request.

An essential component of the method of the invention is the current geographical location of a system user, transmitted to the receiver as a location data. A geographical location may be, for example, a facility (such as
15 a club or restaurant), a building, a street, a neighborhood, an area code, a city, a county, a state, a country, a region, a geographical position (by map coordinates) or a cellular telephone coverage area (cell site). The users may update the computer by actively transmitting their respective current geographical locations through the means described above, or by passively
20 employing an automatic positioning system operated by the telecommunication system, such as an ALI, or by a Global Positioning System (GPS) linked to the telecommunication device.

When a user is interested in being linked to one or more other users, he changes his status to an "active user" by transmitting activation data to the
25 receiver of the computer. The activation data comprises a request to be linked to one or more other active users who fulfill a requirement defined in the request. The requirement may relate to personal traits or services provided or received, which the user desires of other users. At the same time, the user transmits his identity (ANI) and location to the computer, either actively or

passively as described above. This data may be transmitted to the computer either directly or through a human operator. The user submitting the request may be in the same geographical location as the users to which he is interested in being linked, or he may be in a different geographical location at the time of submitting the request. Preferably, he will be in the same location. In the later case, it will be unnecessary to include in the request that the other users be in a specific location, since the system will be preprogrammed to understand that all users must simultaneously be in the same geographical location as the active user. This can be ascertained by comparing their location identifications (ALIs).

The processor module of the computer then analyzes the compatibility of the users by comparing the requirements and location of the request to the identity data and location data of all other active users according to a preprogrammed level of compatibility. Once the computer has found a match, a linker module of the computer initiates (routes) a telecommunication link between the telecommunication devices of the users. Preferably, this link will be an indirect conference call. Since the link is indirect, no personal information is initially revealed to the linked users, such as their respective telephone numbers on a caller identification screen. The indirect link may be through the computer or through other known devices. The users may then decide whether to make direct contact. In the event that more than one user fulfills the requirements, a predetermined hierarchy of active users may be activated.

It should be emphasized that only currently active users are linked, so that no links are made to users who do not wish to receive a link at the present time. If two or more active users are linked, they may be "deactivated", either automatically by the computer or manually by the users.

The method of the invention has numerous applications. These include, but are not limited to:

- Linking to a potential currently available companion present in the same location;
- Linking to a nearby currently available taxi cab or other public transport utility;
- 5 • Facilitating a car-pool;
- Linking to a nearby currently available car repair service;
- Linking to a nearby currently available home repair service (plumber, locksmith, etc.);
- Linking to a nearby currently available and compatible personal service provider;
- 10 • Ordering from a nearby product/utility mobile distributor (gas tanker, oil tanker, etc.);
- Locating and being linked to business/professional-compatible individuals present at a trade show, convention, etc.
- 15 • Calling for nearby currently available medical or other first aid (doctors on duty, volunteer rescue groups, etc.).

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be better understood from the following detailed description of preferred embodiments, taken in conjunction with the following drawings in which:

Fig. 1 is a flow chart illustrating one embodiment of the system of the invention with respect to the meeting of two individuals;

Fig. 2 is a flow chart illustrating an embodiment of the system of the invention with respect to obtaining a service; and

Fig. 3 is a flow chart illustrating another embodiment of the system of the invention with respect to obtaining a service.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The invention will be better understood from the following non-limiting examples, which illustrate various aspects of the invention.

Example 1 (see Fig. 1)

5 User A wishes to be introduced to a compatible individual during his stay at a certain facility (e.g. a convention hall). Prior to transmitting a request, Users A and B have pre-registered by answering a vocal questionnaire provided by the local cellular system operator. The questionnaire included a set of questions regarding the user's personality
10 and interests as well as desired traits of a potential colleague. In addition, a representative of the facility has previously applied for registration as a "geographical location", and is assigned a designated location code XYYYY.

Once User A is ready to be linked, he becomes an active user by
15 dialing a number which identifies the request type (e.g. *MEET) and subsequently enters his current location (e.g. XYYYY). The computer is notified of User A's identity by the ANI inputted with his call. If the computer is employing an automatic location system (ALI), the user does not need to input the convention hall code (XYYYY), as the system
20 receives User A's ALI with the call. Other users (such as User B) have also informed the computer of their active status in the convention hall. The processor module of the computer performs continuous searching and processing of groups of users who are in active mode and have notified the computer that they are present in the same convention hall or have a nearby
25 ALI.

Such an analysis concludes that User A and User B meet the predefined standard of compatibility, and the computer therefore initiates a conference call between User A and User B. As the computer initiates the call, neither of the users receives information regarding the other user's

identity. The telecommunication device identification screen may show a predefined message such as "Linking in process...". Users converse, exchange more personal information and finally decide to actually meet. In order to avoid receiving further linking calls during this time, both users' records are deactivated automatically.

Example 2 (see Fig. 2)

A taxi driver fills out a questionnaire provided by the local cellular system. Such a questionnaire includes information with respect to the taxi's license, method of payment for this interlinking service, etc. After the questionnaire is approved, the taxi is recognized by the system as being a registered taxi service provider, and is assigned User B by the computer on the basis of its ANI. When the taxi is available for service, the driver dials a designated number associated with this service (e.g. *CAB). The computer automatically identifies User B as being an available taxi provider in a certain location by validating his ANI and ALI. The taxi's ALI is periodically updated during the time frame he is in active mode. The ALI may be translated by the computer into an area code.

A potential passenger wishes to call a taxi as quickly as possible. The passenger dials a designated number associated with this service (e.g. *CAB). The computer is made aware that the passenger has submitted the request by the ANI inputted with his call, and adds a record for the passenger as User "A", "A" being the passenger's ANI. Thus, the identity data and the activation data are received by the receiver of the computer concurrently. In this embodiment an automatic location system is operational, so that User A does not need to input his geographical location code, as the system receives the user's ALI with the call.

The computer performs continuous searching and matching of users who are in active mode and are as close as possible to each other by comparing their ALIs. Such a search has provided that the passenger (User

A) and the taxi (User B) meet the predefined standard of compatibility. The computer routes User A's call to User B. The passenger and taxi driver exchange exact location and travel information, negotiate a price (if applicable) and finally agree to the service. Deactivation of the service can
5 be defined as automatic after receipt of the first interlinking call, or performed manually by dialing a designated number.

The object of this application of the invention is to efficiently compete with taxi dispatching services, thus saving the taxi driver payment of the taxi station commission and eventually enabling a reduction of cost to
10 the passenger.

Example 3 (see Fig. 3)

Prior to transmitting a request to be linked to a potential patient, a doctor has filled out a questionnaire provided by the local cellular system.
15 Such a questionnaire includes information regarding the doctor's license, method of payment for this interlinking service, etc. After such a questionnaire is approved, the doctor is recognized by the system as being a registered medical service provider and a record for User B (the doctor) is added to the computer.

20 When the doctor is available for duty, he dials a designated number associated with this service from a cellular telephone (e.g. *DOC). The computer automatically identifies the doctor as being an available provider in a certain location by validating his ANI and ALI. The Doctor's ALI is periodically updated during the time frame he is in active mode. The ALI is
25 translated to an area code by the computer.

A patient residing in area code 69710 wishes to summon a doctor for a house call. The patient dials a designated number associated with this service from a wired line (i.e. 1-800-CELL-DOC). The computer assigns a record to the patient (User A) based on the ANI=A inputted with his call.

The system provides User A with an online (voice menu) questionnaire regarding medical insurance issues, medical situation etc. If the patient is not connected to a system with automatic location detection, he is required to enter his location data by inputting his area code (e.g. 69710). As
5 opposed to the previous examples, in this example the service requester (User A) inputs identity data beyond his ANI into the computer at the time at which he becomes an active user.

The computer performs continuous searching and matching of pairs of users (patients and doctors) who are in active mode and who are located
10 as close as possible to each other by comparing their area codes. Such a search shows that User A and User B meet the predefined level of compatibility. The computer routes User A's call to User B. The patient and doctor exchange exact location and information about the medical situation or requested service, verify insurance coverage (if applicable), and finally
15 agree to the service.

The aim of this application of the invention is to efficiently compete with medical networks, thus enabling self employed doctors to provide services to random patients whilst saving the payment of a commission to the medical service, and eventually enabling a reduction of cost to the
20 patient.

It will be appreciated by persons skilled in the art that the present invention is not limited to what has been thus far described, but rather the scope of the present invention is limited only by the following claims:

CLAIMS:

1. A method for creating a telecommunication link between users of an interlinking system, said system comprising user-associated two-way telecommunication devices and a computer, said computer and telecommunication devices being linked to a communications network, said computer comprising a receiver and a processor, said method comprising:

(a) said receiver receiving an identity data from each of said users relating to the identity of each user;

10 (b) said receiver receiving an activation data from one or more of said users, hereinafter defined as "active users", and location data with respect to said active users' respective current geographical locations, said activation data comprising a request to be linked to one or more other active users who fulfill a requirement defined in said request, and whom are currently located in a geographical location
15 defined in said request;

(c) said processor of said computer analyzing said identity and location data of said active users in response to said activation data, and identifying one or more compatible active users who fulfill the requirement and who are located in the geographical location defined in said request; and

(d) said computer creating a telecommunication link between said compatible active users through said telecommunication devices.

2. A method according to Claim 1 wherein said two-way telecommunications device is a wireless device.

25 3. A method according to Claim 2 wherein said wireless device is selected from the group consisting of a cellular phone, a wireless Personal Communications System (PCS), a paging device, a cellular Personal Digital Assistant (PDA) and a personal computer linked to a wireless device.

4. A method according to Claim 1 wherein said location data is received by said receiver through an active transmission of the data by said users.

5. A method according to Claim 1 wherein said location data is received by said receiver through a passive transmission of the data by an automatic positioning system.

6. A method according to Claim 5 wherein said automatic positioning system is an Automatic Location Identification (ALI) system.

7. A method according to Claim 5 wherein said automatic positioning system is a Global Positioning System (GPS).

8. A method according to Claim 1 wherein said geographical location is defined by a facility, a building, a street, a neighborhood, an area code, a city, a county, a state, a country, a region, or a cellular telephone coverage area (cell site).

9. A method according to Claim 1 wherein said geographical location defined in said request in step (b) of Claim 1 is the location where said one or more active users are currently located.

10. A method according to claim 1 wherein said communications network is a WAN.

11. A method according to claim 1 wherein said communications network is a wired telephone system.

12. A method according to claim 1 wherein said communications network is a wireless telephone system.

13. A method according to Claim 1 wherein said first data is transmitted to said receiver by said two-way telecommunication device.

14. A method according to Claim 1 wherein said processor analyzes said identity and location data of said active users by comparing said requirement and geographical location of said activation data to said identity and location data according to a preprogrammed level of compatibility.

15. A method according to Claim 1 wherein steps (a) and (b) of Claim 1 are carried out concurrently.

16. A method according to Claim 15 wherein said identity and location data are stored in said telecommunication device, and are received by
5 said receiver together with said activation data.

17. A method according to Claim 16 wherein said identity and location data is integrally stored in said device.

18. A method according to Claim 16 wherein said identity and location data is stored on a memory device.

10 19. An interlinking system for creating a telecommunication link between users of said system comprising user-associated two-way telecommunication devices and a computer, said computer and telecommunication devices being linked to a communications network, said system further comprising:

15 (a) a receiver module of said computer for receiving an identity data from each of said users relating to the identity of each user; said receiver module receiving an activation data from one or more of said users, hereinafter defined as "active users", and location data with respect to said active users' respective current geographical
20 locations, said activation data comprising a request to be linked to one or more other active users who fulfill a requirement defined in said request, and whom are currently located in a geographical location defined in said request;

(b) a processor module of said computer for analyzing said
25 identity and location data of said active users in response to said activation data, and identifying one or more compatible active users who fulfill the requirement and who are located in the geographical location defined in said request; and

(c) a linker module of said computer for creating a telecommunication link between said compatible active users through said telecommunication devices.

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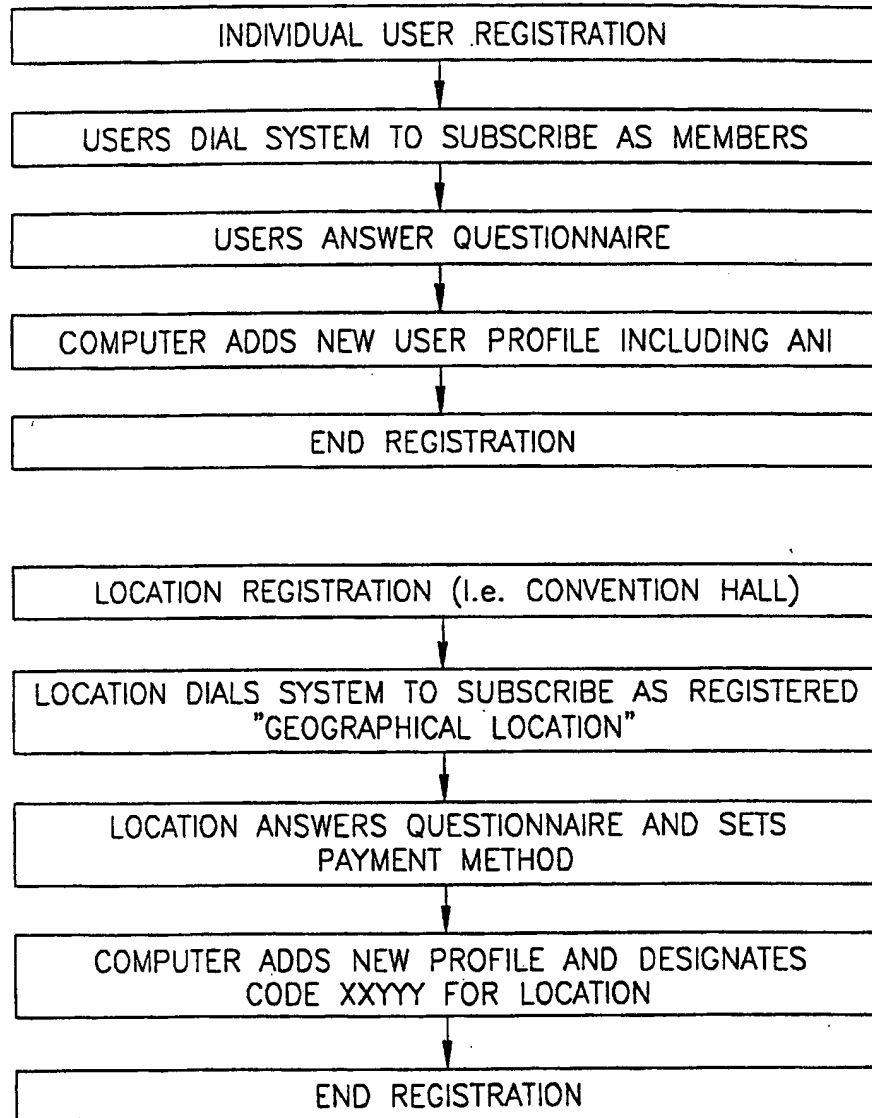


FIG.1

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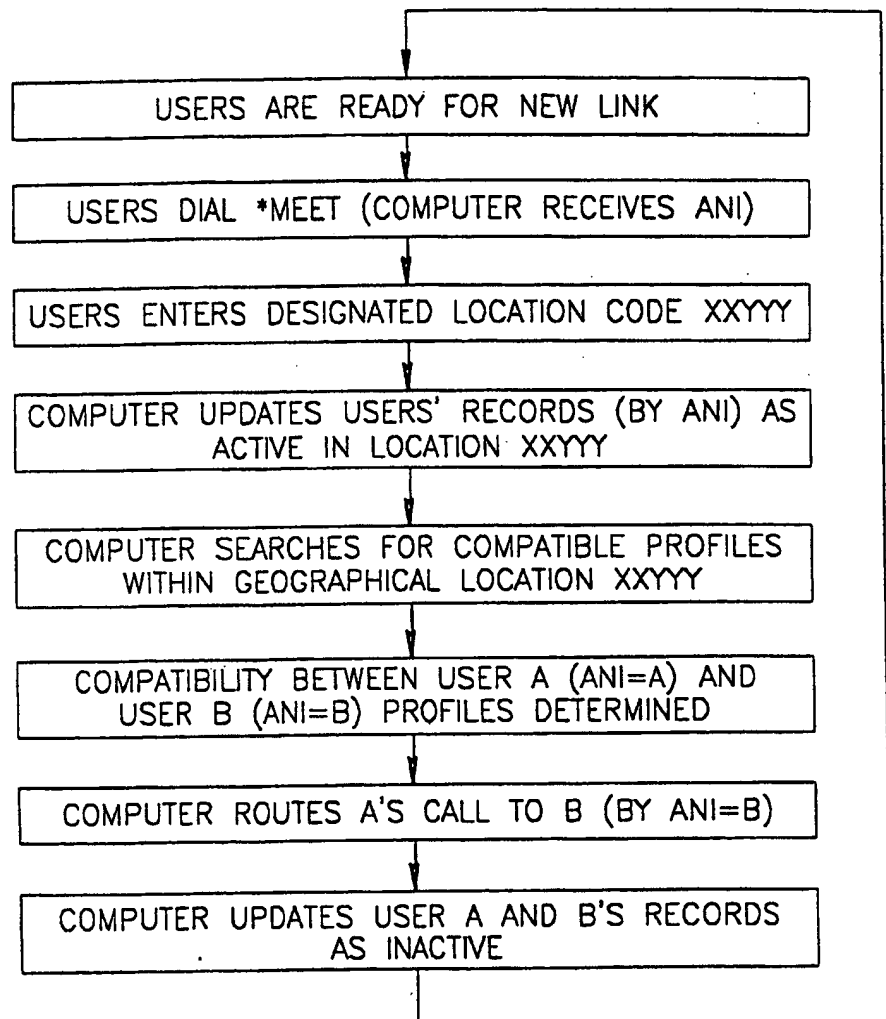


FIG.1 (CONT.)

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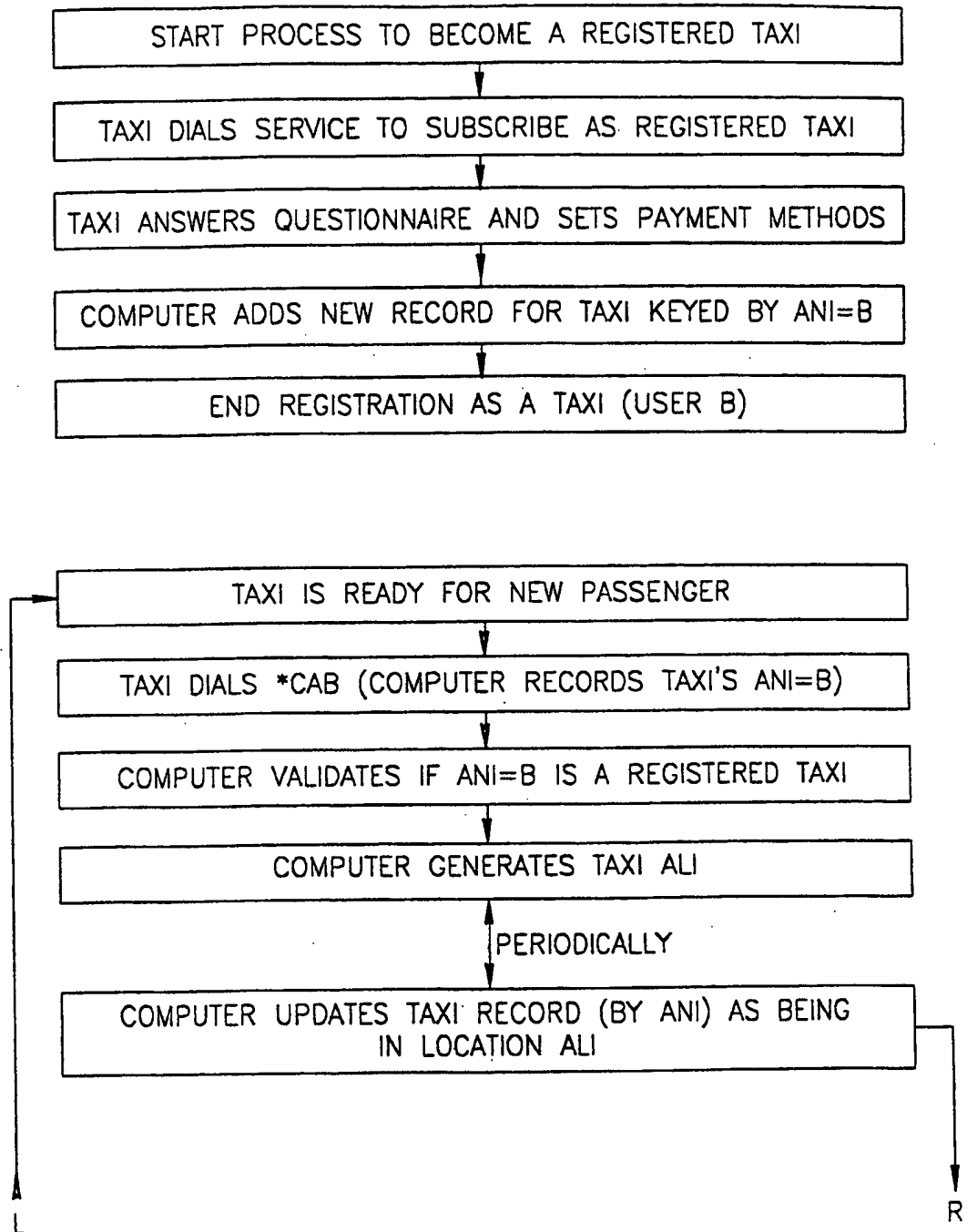


FIG. 2

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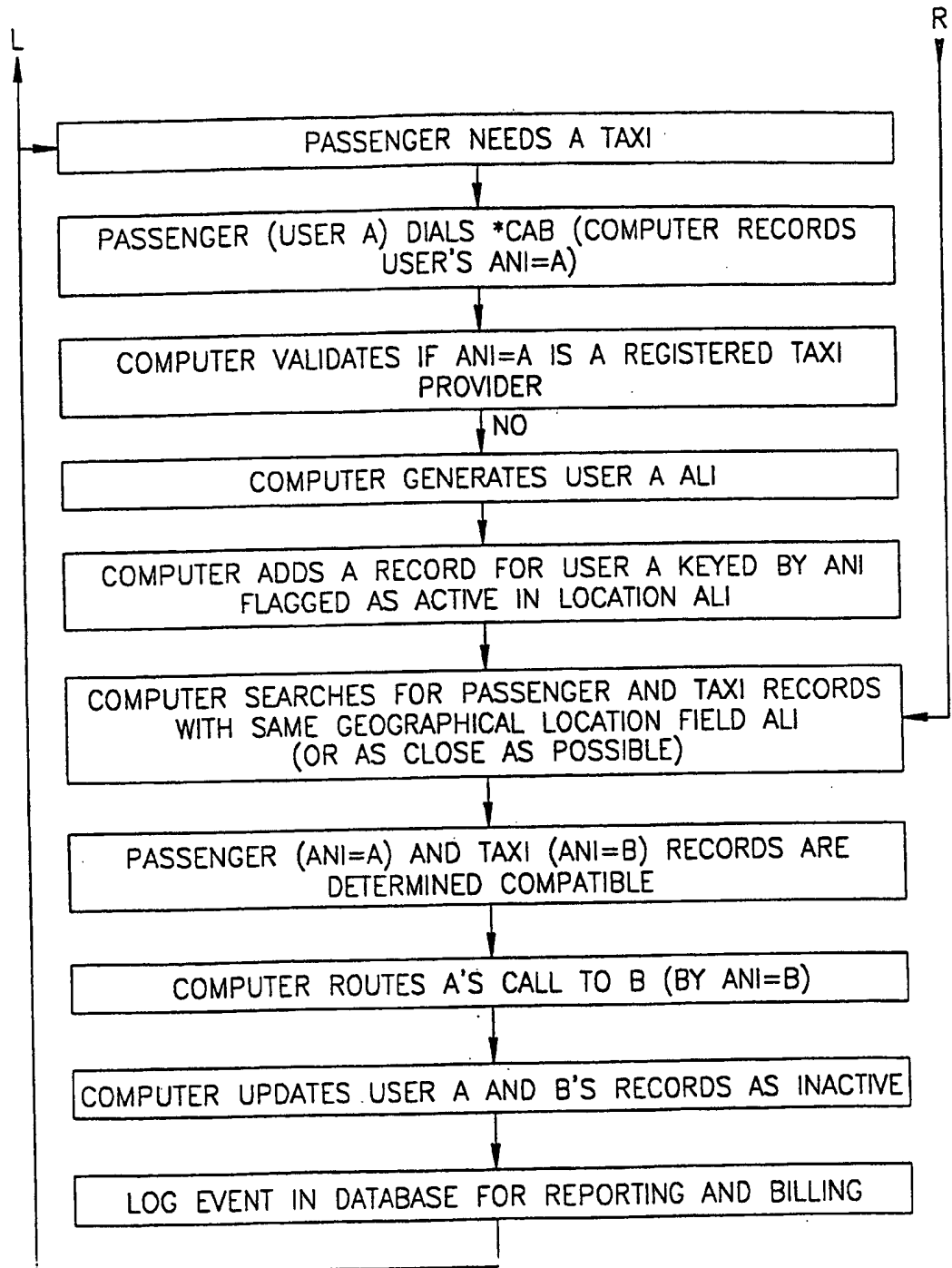


FIG. 2 (cont.)

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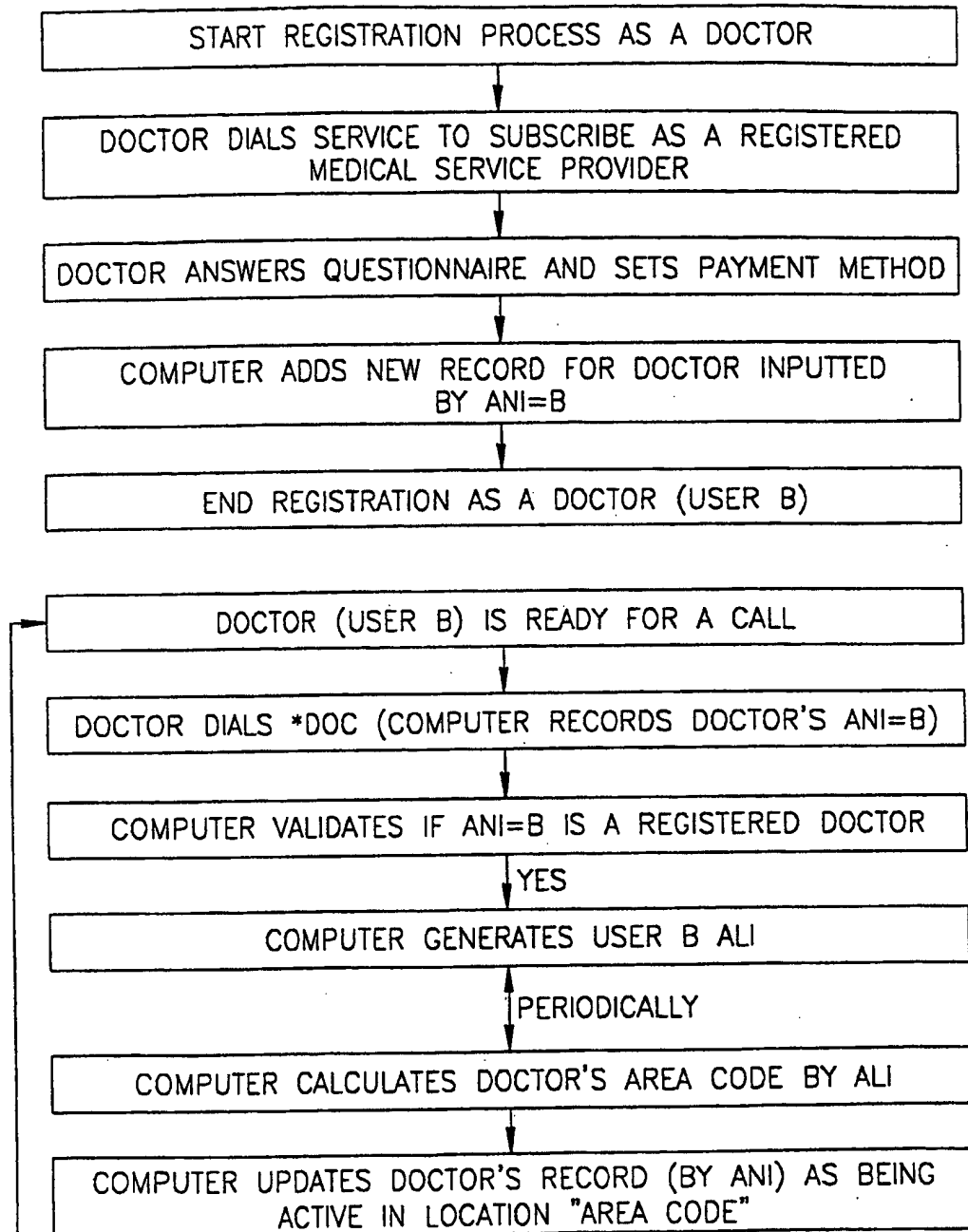


FIG. 8

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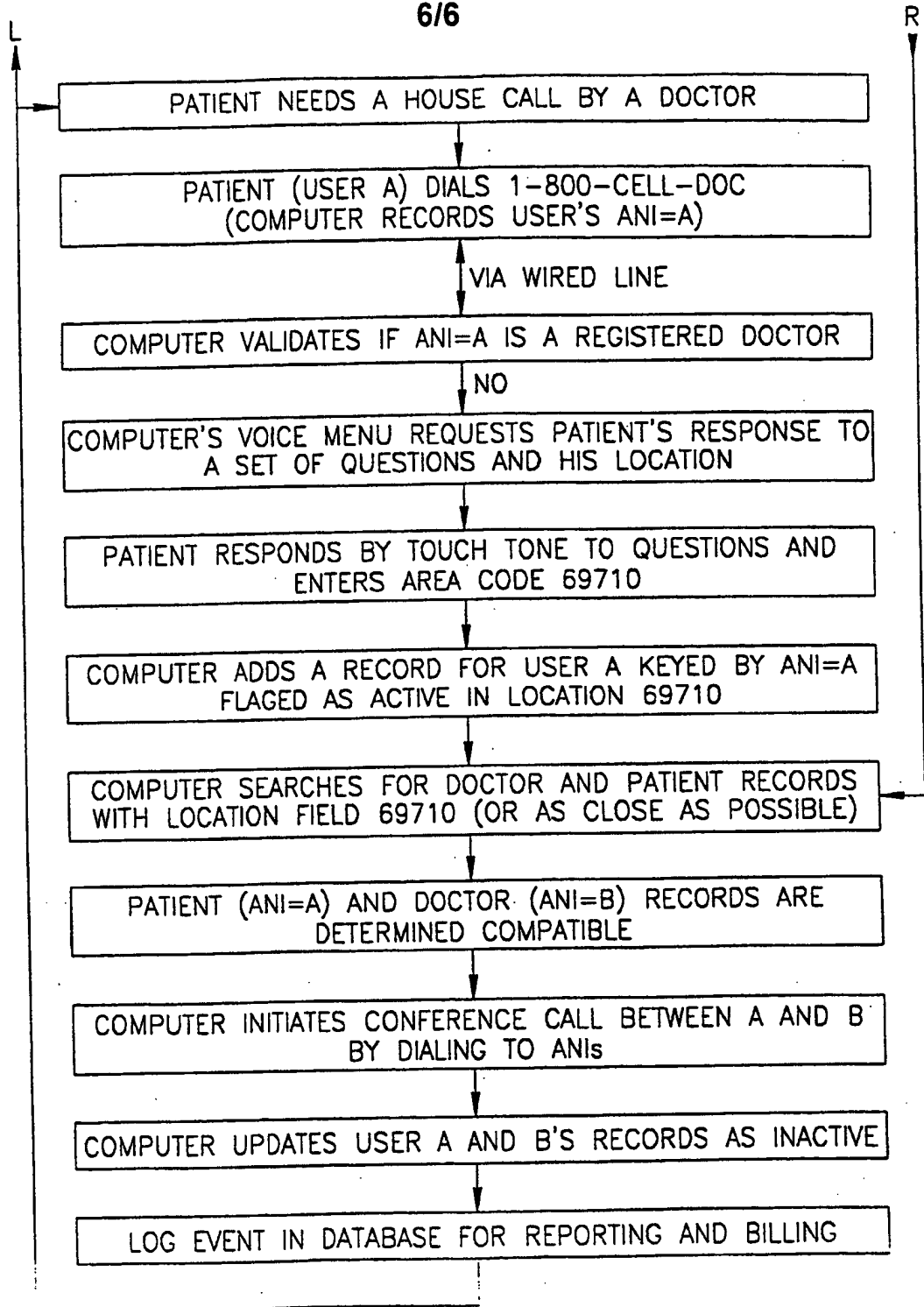


FIG. 3 (CONT.)

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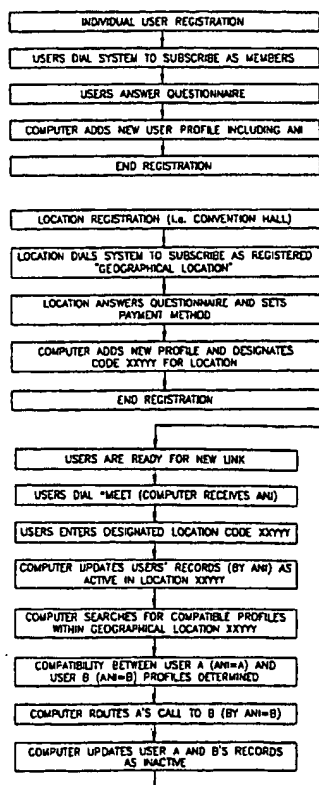
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(54) Title: METHOD AND SYSTEM OF INTERLINKING



(57) Abstract: A method and system for creating a telecommunication link between users of an interlinking system, where the user to be contacted is unknown. The system comprises user-associated two-way telecommunication devices and a computer, the computer and telecommunication devices being linked to a communications network. The computer comprises a receiver for receiving real time data from the users and a processor for analyzing the data and identifying the users with which a link is to be created. The link is then created by the computer through the communications network.

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(AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,
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INTERNATIONAL SEARCH REPORT

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B. FIELDS SEARCHED

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IPC 7 H04Q H04M

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Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 16934 A (JARLAB AB ;LARSSON JARL (SE)) 9 May 1997 (1997-05-09) page 1, line 5 -page 4, line 4 page 8, line 3 -page 10, line 20; figure 1	1-3,5-8, 10-19
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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